

Neolithic Culture In Tamil Nadu – A Study

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Abstract: In the Holocene period, an important change in human history was taken place as man began to adapt environment to meet his needs. The economy of hunting and food gathering was replaced by a deliberate food producing system involving husbandry and excess raising of stock. He also tried to settle down in villages effectively. The ideal socio-economic system of this people has been termed as Neolithic Revolution. In true sense Neolithic is a subdivision of Stone Age based on a purely technological grounds. Its original connotation that during this period the tools of man were of stone, but they were 'ground' or polished has lost its value. It means "a cultural or economic stage, when man had learnt not only to smoothen his stone tools by different methods, but above all he had begun to produce his own food. Practice of agriculture, domestication of animals, use of pottery and settled life are the other features of this period.

Keywords: Neolithic, Celt, Polished stone tools, Domestication, Neolithic Revolution, Early Farming, Tamil Nadu

1 INTRODUCTION

In Early Holocene period a trend towards domestication of plant and animal species began in some of the hunter-forager communities inhabiting various parts of the Old World and is referred as Neolithic or Early Farming Communities. The 'Neolithic' throughout the Old World is taken to be synonymous with the earliest agriculture, due to the widespread appeal and influence of V. Gordon Childe's Concept of a 'Neolithic Revolution' (e.g. Child 1936, 1942, 1956). While the term 'Neolithic' is used, especially in archaeology and anthropology, to designate a stage of cultural evolution or technological development characterized by the use of stone tools with the existence of settled villages dependent on domesticated plants and animals. Neolithic cultural most of the sites are located in the North Western part of Tamil Nadu and evidence is limited in Krishnagiri region, although this culture is better represented in Vellore, Salem and Dharumapuri districts of Tamil Nadu. However, numerous polished stone axes often called "Neolithic celts" have been reported from Krishnagiri, Dharumapuri, Salaem, Vellore and some of the loots are found at Keeladi excavation in Madurai District. These sites have been conventionally described as "Neolithic" sites. However, no clear evidence for Neolithic association has been found at these sites, and hence they cannot be categorized under the Neolithic Culture, without detailed investigations. Hence, these sites are described separately in this article.

2 PREVIOUS STUDIES

In Tamil Nadu, the first Neolithic stone axe was discovered by Surgeon General Cornish in the year 1865 (Narasimhaiah 1980:1) and then many hundreds of them have been brought to light from nook and corner of Tamil Nadu. But, the credit of placing Tamil Nadu on the Neolithic map of India goes to Bruce Foote for his pioneering work in this field. He has collected and classified the polished stone tools.

He has also collected a large number of ground stone axes on the top of the Sherveroy hills (Foote 1979:57-58). A stone axe of the Neolithic type was also found by him from Seidunganallur near Tirunelveli. Neolithic implements were also discovered from Korkai in neighbourhood of Sawyerpuram in Tirunelveli district. He has also discovered Neolithic celts at Ninniyur (Udayar Palayam taluk) and Othakkoil in Ariyalur district, Moganur in Salem district. (Foote 1979:49-63) Bruce Foote also discovered a factory site of the Neolithic culture near Bargur in Krishnagiri taluk. Among the weapons and tools discovered, there are twelve types of celts, six types of chisels, three types of hammers, two adzes, anvils, corn crushers, cylinders, discs and hammer stones. In his book, he has carefully noted the changing scenes of human activity from open air stations to rock shelters and then to thatched houses and solid structures. In the long march of human development, he recognized that it was the Neolithic period that great advances in civilization, not only in the improved arms and tools but also in the discovery of the art of firing vessels and domestication of animals took place (Foote 1916:14). In this connection, the work done by the great scholar B.Narasimhaiah deserves special mention here. He explored the north western part of Tamil Nadu and discovered many Neolithic habitation sites. Many Scholars like S.R. Rao (1963-64:19-20, 1964-65:22-23 and 1967-68:26-30) V.D.Krishnawamy (Krishnaswamy 1947:38-40 and 1962:25-64) K.R. Srinivasan (Srinivasan 1953:103-115) K.V. Raman (Raman 1969:499-509 and 1978-79:73) V.N.S. Desikan (Desikan 1962-63:57-58) K.V.Soundara Rajan (Soundara Rajan 1964:107-117) K.Rajan (Rajan 1997:1-334 and 2004:74-89) G.Thirumoorthy (Thirumoorthy 2009:42-43) V.Selvakumar (Selvakumar 1996) and others have contributed much in tracing the origin and growth of Neolithic culture in Tamil Nadu.

3 NEOLITHIC SITES IN TAMIL NADU

Paiyampalli (12°33'09"N; 78°27'01"E)

S.R.Rao of the Archaeological Survey of India discovered a Neolithic habitation site at Paiyampalli in Vellore district and he excavated it during the years 1964-65 and 1967-68 (IAR., 1964-65: 22-23; 1967-68: 26-30). But the full results of the excavations are yet to be published. However, this excavation gave fresh impetus to further research in Tamil Nadu. The districts of Chengalpattu (Krishnasamy 1947), Pudukottai (Srinivasan 1944 and 1944-45), Madurai (Raman 1969), Coimbatore (Desikan 1962-63), Dharmapuri (Narasimhaiah 1972), North Arcot (Present Vellore and Tiruvannamalai),

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Coimbatore, Erode, Dharmapuri, Krishnagiri (Rajan 1996–1997) and Kanchipuram (Thirumorthy 2009 and Kumar 2011) have been systematically explored to trace out the Neolithic habitation sites.

Dailamalai (12°00'46"N; 78°31'30" E)

Dailamalai is a hill situated in Harur taluk of Dharmapuri district. It is about 6 km north-west of the village Pappireddipatti, which is nearly 20 km south of Harur. A Neolithic site is located on the north-eastern foot of the Dailamalai. The river Vaniyar, a tributary of the south Pennar flows about 1 km away from the site. This site yielded large quantities of associated potteries of Neolithic and Megalithic periods.

Mullikkadu

This site is also situated in the Harur taluk of Dharmapuri district and it lies at the foot of the hill known as Vattamalai, a part of the Shervroy hill range. Stratigraphical section scraping conducted by B. Narasimhaiah at Dailamalai, Mullikkadu and Togapalli sites throws new light on this culture (Narasimhaiah 1980:28-29).

Pannimaduvu (12°09'59"N; 78°21'17"E)

The village Pannimaduvu is situated about 11 km north – east of Kadatur in Harur taluk of Dharmapuri district and lies on the Dharmapuri – Pappireddipatti road, 30 km from Dharmapuri. This site has yielded large number of Neolithic cultural remains (Narasimhaiah 1980:29). This site is situated in the valley called Pannimaduvu.

Appukkallu (12°51'11"N; 78°59'27"E)

A small village lies 1 km south of Anaicut in Vellore taluk. The Department of Ancient History and Archaeology, University of Madras conducted excavations (Raman 1976-77:47-48 and 1979-80:70) in two seasons in the year 1976-77 and 1979-80 on the ash mound locally known as Nainarkollai, located at the western foot hill of Ganganallurmalai and also called Paniyara Thippai. The excavations yielded mainly the vestiges of Iron Age folk with survivals of the Neolithic cultural traits like ground stone axes.

Kallerimalai (12°50'54"N; 78°44'44"E)

Kallerimalai is located 1 km north of Rajakkal in Gudiyattam taluk and lies on the northern side of Gudiyattam - Ambur road. The Department of Ancient History and Archaeology, University of Madras conducted excavations in the year 1978-79 at the foot hill of Kallerimalai with a view to ascertain the spread of Neolithic and Megalithic culture in this region. The excavations yielded black and red ware and a few ill-fired grey ware sherds resembling the neolithic pottery and polished stone axe in the earliest level of the deposit (Raman 1978-79:21) as at Appukkallu.

Armamalai (Arumbhavamalai) (12°45'26"N; 78°39'07"E)

Armamalai is located west of the village of Malayambattu at a distance of about 2 km following the course of a wild stream undulating the Malayambattu lake and flowing from the hills of the west, and which is liable to be dry during most part of the year. The site is in the form of a natural cavern facing south into a horse – shoe shaped valley, and formed of an upper terrace of low rocky bed with the fields further towards the east of lower level. The southern circle of the Archaeological

Survey of India conducted a trial excavation inside the cavern at Armamalai. The lower level yielded sherds of the megalithic black and red ware along with those of the handmade coarse, black slipped ware; burnished or unburnished, the latter appearing to be a lingering vestige of the earlier Neolithic tradition (IAR 1970-71:34-35).

Modur (12°25'12"N;78°18'48"E)

Modur is located about 15 km north west of Dharmapuri and 5 km west of Dharmapuri – Krishnagiri road in Palacode taluk. A habitation site with Neolithic and megalithic remains was discovered by K. Rajan during the year 1989 (Sridhar 2005:3). The State Department of Archaeology, Government of Tamil Nadu conducted excavations in the year 2004 – 2005 in three habitation mounds (Sridhar 2005 : 5-43).

Bargur (12°32'9"N 78°21'21.94"E)

The factory site of Bargur is situated about 4 km north-west of Bargur in Krishnagiri district. Robert Bruce Foote (1916) had noticed this factory site earlier. As in the case of the above site, this tool has not yielded any tools showing the final stage of manufacturing (Narasimhaiah 1980:30). It is noteworthy that all the sites mentioned above are situated either at the foot of the hills or on their terraces. No habitation site has so far been discovered either on the bank of a river or in the plains. As the hillocks around the site as most suitable for terrace cultivation, the Neolithic folk of Tamil Nadu would have preferred the hill ranges rather than river banks. The explorations on the top of the hill ranges; the Shervroy, the Javadi, the Elagiris, the Vattalamalai, that there were no traces of habitation of the Neolithic people. In spite of that a large number of polished stone axes were collected. Further, it is said that even now, while ploughing the lands these implements turn up occasionally.

Kappalavadi (78°22'01'E; 12°29'22"N)

Kappalavadi is situated about 8 km south-east of Bargur, which is on the Bangalore – Chennai National Highway and 12 km east of Krishnagiri. The hillocks located on the western side of the Kappalavadi have yielded polished stone axes in different stages of manufacture and also by product flakes in plenty (Narasimhaiah 1980:30). However, no specimen showing final stage of manufacture i.e. grinding has been encountered.

Neolithic Traits of Tamil Nadu

The present and previous excavation and explorations conducted at archaeological sites of Tamil Nadu has brought to light several artifacts such as pottery, ground stone tools, mullers, querns, pounders of early farming cultures. Notwithstanding to the geographical locations of the area, these materials have shown distinct variations in shape size dimensions and technique of preparation etc. On the basis of the differences in the makeup of these artefacts, the identification of the cultural affects can be attempted. The handmade pottery with slip and burnishing techniques can be assumed to have belonged to Neolithic period. One significant feature in the cultural material recovered from a couple sites is the presence of handmade burnished black and red ware shreds with thick sections, which might provide evidence for the transition phase between neolithic and megalithic periods. The Neolithic and megalithic periods show marked variation in the technique of pot preparation the former with handmade, burnished grey, brown and buff ware, in the latter inverted

firing technique/double firing technique. The other artifactual materials such as ground stone tools, mullers, querns, pounders are usually associated with Neolithic period as it is held that the metallic tools are absent during this period under consideration. Hence, it is assumed that the Neolithic man was totally dependent on ground and polished stone tools use for the preparation of carpentry and agricultural implements. Hence, it is assumed that the disuse of stone implements during megalithic and early historic periods is an important feature. Hence, a clear-cut distinction is identified in the economy of early farming cultural make up of Krishnagiri region i.e., the preparation of handmade pottery and stone implements such as hand axes, adzes, chisels and non-edge tools such as querns, mullers and pounders during the Neolithic period. Thus, the explorations conducted at the Krishnagiri region from the 22 sites brought to light.

Food and Economy

The Neolithic people's economy was a mixed one ranging from collecting, gathering, hunting, fishing to animal husbandry and primitive agriculture. Several terrace like structures presents on hill summits and slopes were used for habitation but also for farming, which is still a surviving practice among the rural as well as tribal folk in certain interior parts of the southern states. Direct evidence for the practice of agriculture is provided by the discovery of charred grains of horse-gram (*Dolichos biflorus*) along with green-gram (*Phaseolus radiatus*) and ragi (*Eleusine coracana*) from Paiyampalli (Rao 1967-68:27). The horse-gram also discovered at Tekkalakota and ragi from Hallur both in Karnataka (Rami Reddy and Iswar 2001 : 175-180). Similar cereals and pulses were grown by the Neolithic people elsewhere in the Southern India. Querns and rubbing stones, a common scene at all sites, must have served the purpose of pounding and grinding grains.

Pottery

The Neolithic ceramic industry of Tamil Nadu is represented by five major wares: Red ware, Tan ware, Grey ware, brown ware and black ware with their variants (Narasimhaiah 1980:32). On the whole, the plain pottery dominates the ceramic industry. However, the pottery with incised and combed decorations is not wanting and is represented in small quantity. Only one sherd painted in violet on pale red surface was collected from Gollapalli (Narasimhaiah 1980:32). The bulk of the pottery is handmade. Use of turn-table technique and slow-wheel employed in manufacturing the pottery are evident on some of the pottery. However, the latter method of manufacturing seems to have been employed more frequently at Mullikkadu. In manufacturing huge and thick jars, it seems that the beater and anvil technique is employed. Luting is a common technique employed in manufacturing spouted vessels, channel spouted vessels, etc. It is noteworthy that the Neolithic ceramic industry in Tamil Nadu has yielded about eighteen major types and about sixty seven variants including process incised and painted pottery. The Neolithic pottery is essentially handmade and as such it has thick walls and finger impressions on either side. Usually in hand made pottery, the mouth portions of the pots are very wide so as to facilitate free movement of hand during clay modelling with either flared, out curved and everted rims. Certain of the rims are flattened on the top as well. The use of the techniques such as burnishing, daber and looting are also observed on certain pot pieces which indicate that the advanced techniques were employed

by the potter. A detailed discussion is given below to have more understanding about the preparation of pottery during Neolithic times at Krishnagiri Region.

Pottery clay

The clay that was used in the preparation of pots contains the clay mixed with gritty substances such as quartz sand or non-gritty substances such as levigated clay of fine varieties. Allchin, F.R. (1960: 26-30) opined that the use of gritty substances provides fusion to the pots at the time of firing. A few sites in Krishnagiri Region fall under granetoid gneissic area and probably the clay available locally near the ponds was procured by the Neolithic potter for the preparation of pots.

Pottery making technique

All the pots are handmade. This is indicated by the presence finger impressions and uneven surfaces on the pottery. However, certain shreds provide evidences for scooping marks mostly on the interior surfaces of the shreds and it might be due to the use of a split bamboo or a reed to remove clay clots and undulations on the body. This sticking clay clots and uneven surfaces had reduced the abnormal thickness of the pot body. It is also identified that the use of luting technique on certain high necked jars where in the belly portion of the pots and rim portions were prepared separately and joined together when both are in leather hard condition.

Pottery Fabrication

The pottery is essentially handmade and as such contains wide mouths, and thick bodies. In this connection, it may be observed that the thickness of a pot is mostly guided by the core that was used during its preparation. If the core contains gritty substances, one cannot help except to prepare a thick walled vessel. Same is the case with the typology and the shape of a vessel. It is difficult to prepare sophisticated, designed, decorated and miniature pottery on the gritty core. On the other hand, the fine clay is suitable for preparation of miniature vessels and vessels with thin walls. The different shapes such as high necked vessels, pinched lips, spouts, dish-on-stands etc., are easy to be prepared on fine clay. Add to that, the surface treatment such as slip and burnishing is also very much guided by the clay that was used in the preparation of pottery. The storage vessels particularly meant for grain etc., need no burnishing but the water storage pots require burnishing as it seals the porous structure of the pots prepared in hand modelling. Basing on the typo-technological features, the surface treatment and the body clay, the pottery recovered from Krishnagiri Region may be divided into two fabrics 'A' and 'B'.

Fabric-A

Pottery prepared out of gritty core substance is considered here as fabric A. The shreds of this fabric are sturdy and range in thickness between from 1.2 cm to 2.5 cm. However, a very few shreds are less than 1 cm thick. Majority of the shreds are devoid of slip and burnish. The incised and decorated shreds are also very limited. The fabric of the pot in majority of the cases are bigger in size and probably prepared for storing food grains or water etc. The pot forms of this fabric include globular vessels, wide mouthed vessels and a few bowls. Coarse brown, grey and red wares respectively present in the decreasing order of their preference in this fabric.

Fabric-B

The pot shreds made out of fine clay are categorised here as Fabric B. The clay used for preparation of pottery which is superior / variety is considered here as Fabric B. The shreds of this fabric are thin and do not exceed 1.5 cm in thickness. In contrast to Fabric A majority of the shreds of this fabric contains slip and burnish. The incised and decorated shreds are also available in large numbers. The grey and pale grey shreds predominate over brown, red and black wares. Majority of the pot forms of this fabric are small in its size and mostly used for cooking, eating and drinking purposes. They include high necked vessels, miniature vessels, spouts, craniates vessels and a variety of bowls, basins and lids etc.

Surface Treatment

The Slip

A considerable number of shreds are treated with a thick 'applied slip'. Allchin, F.R (1960: 29) feels that the slip contains some 'Organic substance including mucilage or gum'. Some of the pots have simple clay wash which could have been applied with cotton or some such material. In this connection, it is difficult to assess whether the colour of the pottery was due to the colour of the slip applied during preparation or difference in the firing process or due to the different minerals present in the body clay.

Burnishing

Burnishing seems to have been applied on the pots with the help of smooth pebbles or bone when the pot was in a leather hard condition. It appears that the burnishing has given double advantage i.e., smooth and lustrous. Shining to the pot body and sealed the porous structure which invariably present during the hand modelling. Majority of the pots of fine fabric have burnishing was done in short strokes either horizontal or vertical lines and rarely in criss-cross lines as well. Usually, the outer surfaces in a considerable number of pots show burnishing while in a few pots and bowls; the inner surfaces were also burnished depending upon the movement of the hand.

Firing Process

In the absence of evidence of kiln to be used for firing the pots in the sites under consideration, at Piklihal, Allchin F.R. (1960: 30) conjectured that the pots might have been fired on the open ground in the form of rapid 'flash firing'. Some of the thick shreds with gritty cores show dark sections. It was perhaps due to the non-penetration of sufficient heat into the interior of pot section. The blocky shreds which constitute 28% of the total shreds of these sites might be due to the result of uneven distribution of heat in the kiln and the oxidation.

Pecked and Ground Stone Industry

As the Neolithic period saw new dimension of introduction of pottery, a new technological development is also envisaged in tool industry as well. The stone tools were prepared on a ground and polished technique which were used for agricultural and carpentry works for the first time. In this way, the Neolithic period witnessed new technological development in tool industry as well. The principal raw materials used for the ground stone tools include the igneous and metamorphic rocks which are locally available in the form of dykes, in Krishnagiri region formations. The edge ground tools viz., axes, adzes, chisels and picks are prepared on igneous rocks

such as dolerite and gabbro while the non-edge tools such as mullers, querns, sling stones and mace heads are prepared on igneous and metamorphic rock like quartzite pebbles, dolerite, gabbro and granite. The explorations conducted by Narasimhaiah, at the factory sites near Kappalavadi and Bargur prove that the Neolithic people had a pecked and ground stone industry of their own. Large amount of artifacts were collected at the Neolithic factory sites and all of them were made on dolerite. So far 9 axes (Figure), 2 adzes, 2 hammer stones, 7 pointed tools, 2 blade flakes, 2 fabricators and 48 waste flakes were collected at the above sites. It has also been observed that they generally used the tabular or cylindrical pieces of natural stones for manufacturing the implements in the case of blade, flakes and chopping tools. All the specimens are either unfinished or more or less finished and broken. No specimen shows pecking or grinding. Hence, it seems that only the first two phases of manufacturing i.e. rough flaking and finer flaking are employed (Narasimhaiah 1980:60-61). It seems that the microlithic industry played a major part along with the pecked and ground stone industry in the life of the Neolithic people in Tamil Nadu. Several microlithic tools like arrow heads, points, borers, burins, lunates, side scrapers, end scrapers, hallow scrapers, blades, blade flakes, asymmetrical cores and fluted cores were collected at Mullikkadu, Togarapalli, Dailamalai, Vattamalai and Mayiladumparai sites (Narasimhaiah 1980:69-75; Rajan 2004:74-88). A major portion of the tools mentioned above were made of silicious material such as quartz chalcedony and crystal.

Technique

The techniques used for the fabrication of the ground stone tools were discussed time and again by different scholars. Allchin (1960, 85-86) and Reddy (1978: 43-45) recognised that there were three basic techniques known as flaking, pecking and grinding employed in the preparation of ground stone tools while Foote (1916: 85) observed fourth stage i.e. polishing. Flaking was employed to give a rough shape to the stone by direct percussion method. All these techniques are available on the tools recovered from the 20 Neolithic sites of Krishnagiri Region but of course, in different combinations. Some axes were prepared directly on the shaped stones naturally available by grinding the edge, while the some axes were prepared stones naturally available by grinding the edge, while the some axes were prepared by using flaking, pecking and grinding techniques. The flaking technique used for shaping the tool while the pecking was used to remove high angularities. The grinding technique was used to produce the smooth cutting edge. The lustrous shining on the tools was initiated by applying grease or oily substance (Sankalia 1964: 80).

Typological Classification

Foote (1916: 20-21) was first to attempt typological classification on ground stone tools. He recognised two basic tool types on the basis of technique and shape such as ground and polished stone tools and among the unpolished tools 25 types. Besides these, he subdivided Celts into 12 groups. Chisels into 6 types and axe hammers into two types etc. Although Foote's classification was first of its kind in south Indian Neolithic, it was mainly based on morphological features such as shape and size, it lacks the basic fundamental feature i.e., function of the tool (Subba Rao, B.

1948: 33), Worman, E.C. (1949: 181-201), Seshadri's (1956:54) classification also carry similar drawbacks. It was Allchin (157:328-32); (1962:311-140) who put greater emphasis on the functional utility of the artefacts and hence divided the tools into 5 major groups such as edge tools, points, rubbers, hammers and miscellaneous which were again subdivided into subgroups. Basing on the taxonomy proposed by Allchin, the present writer classified the ground stone tools collected from Krishnagiri region into two divisions such as edge ground tools and non-edge ground tools. The edge tools are basically cutting implements which include the axes, adzes, chisels, picks and shoe last Celts while the non-edge ground tools are those of rubbers, hammers, mace heads, saddle querns etc.

Functional aspect of stone tools

The edge tools like axes, chisels and adzes are mainly wood working tools and may have been employed in such operations as cutting, splitting, chopping and slicing. The hammer stones and rubber stones could be used, respectively for crushing and grinding cultivated grain as well as wild vegetable food. The querns would serve as 'holds-in' in the same operation (Allchin 1957:323).

Availability of Raw Material

The raw materials used by Neolithic folk for preparation of tools include both igneous sedimentary and metamorphic varieties. The igneous rocks viz., dolerite and basalt which are exclusively used for preparation of edge and non-edge tools. But very less amount of edge tools are recovered from the sites. Granetoid and schist ones gneissic are not much available locally. While the quartzite which is used for non-edge tools is amply available in the region in the form of pebbles on the river sections. At the few Neolithic settlements like Bargur, Varatanapalli, Kappalavadi and Kundalakunda provide the raw materials and allowed the rise of tool manufacturing centres. At these sites, the finished and unfinished edge ground tools such as axes, adzes in association with the byproduct flakes are available in form of veins in Bargur and Varatanapalli range of hills. The non-edge ground tool, such as rubbers, Querns, mullers are prepared out of the dyke which is available in the form of pebbles on the hill slopes. Hence during the Neolithic times different types of stone tools were locally prepared taking into account the locally available raw materials.

Settlement Pattern

Willey, G.R. (1956) was first to introduce the concept of settlement pattern studies in Archaeology. According to him, the settlement pattern is the study "the way in which man disposed himself over the landscape on which he lived". It is a strategic point for the functional interpretation of archaeological cultures, since they reflect on the natural environment, the level of technology on which builders operated and various institutions of social interaction which the culture maintained. Willey, G.R. (1953) also published a monograph on the "Prehistoric settlement pattern in the Viru valley, Peru" which in course of time became a model for settlement pattern studies in archaeology. Chang (1958) described settlement pattern as "the manner in which human settlements are arranged over the landscape in relation to the physiographic, geographic and environment" and community patterns as "the manner in which the inhabitants arrange their

various structures within the community and their communities within the aggregated. Flannery, K.V. (1976) opined that a settlement is the pattern of sites on the regional land scape. It is emphatically derived from sampling, total survey and is usually studied by counting sites, measuring their sizes and the distances among them and so on". According to Trigger, B.C. (1963) a settlement pattern is "the manner in which people, cultural activities and social institutions are distributed over the landscape". He further identified three levels as determinants of settlement pattern (Trigger, B.C. 1968).

These include:

The first pattern is individual building level which mainly emphasises on the construction of households on the environmental conditions, availability of technology and the status of the individual who propose to construct it. Community level is the second criteria which aims at the assortment of house constructions in an area which might provide clues about the social and economic framework of the community. The zonal pattern is the third aspect which is based on geographical concept. It studies the influence of the physical features such as perennial water supply, fertility of the soils, the availability of raw material, grazing grounds and the stable environment conditions which are determinants of a settlement pattern of a community. Explorations in different parts of the country followed by selective excavations have revealed that early farming communities existed in the regions, more particularly in central India and Deccan (Dhavalikar et al., 1988). The large scale excavations carried out by the late H.D. Sankalia and his colleagues at Maheswar and Navdartoli in the 1950's brought to light the Chalcolithic culture of central India which is now labelled the Malwa culture (Dhavalikar, 1970-1). Subsequent excavations at Nagda, Earn, Kayatha, Dangwada and many other sites have pushed back the antiquity of settled life in this Part of the country to the beginning of the second millennium BCE. and the radiometric dates, when calibrated, assign it to the last quarter of the third millennium BCE. Explorations carried out by the late V.S. Wakankar of Vikram University, Ujjain have brought to light a large number of settlements of the early farming communities of central India. It may, however, be stated that much of his work has been confined to the western part of Madhya Pradesh which is commonly known as Malwa. No significant work has yet been done in the eastern part. Besides, all the excavations, except those at Navdatoli, were small-scale vertical digs, aimed at establishing the culture sequence, and more over much of this work has not even been fully published. Our knowledge of the early farming communities of India in general and Malwa in particular is rather sketchy. The above discussion drives us to a point that the settlement pattern is a geographical concept which brings into focus the working relationship between people, their environment and their technology. Further, the settlement pattern studies aims to obtain ecological, sociological and cultural information of ancient societies not from a single culture or site but from a multiple of sites. The present study here is mainly based on the zonal pattern proposed by Bruce Trigger (1968) basing on the determinants of settlement pattern. The data gathered from 20 newly discovered archaeological sites from Krishnagiri region by the author have been utilised for the purpose to draw inferences about the way in which the early farming societies of Krishnagiri region organised their settlements in respect to their physical environmental and cultural

settings. The Neolithic people generally lived on the tops and occasionally on the slopes and foot of castellated granite hills with natural rock shelters or caves, plateaus, open spaces, perennial water cisterns, availability of land for agriculture, wild fauna for hunting and other life activities, and above all the rocks in the form of natural trap dykes occurring as crests and ridges for the manufacture of the ground stone tools, the main technological complex—all of which provided a suitable background for living. The hill-tops or sides are leveled by removing stone boulders and filling their hollows with rubble and silt. Occasionally river banks away from hills were also frequented. The Neolithic people of this region preferred granitoid hills like Togarapalli, Gollapalli and Kappalavadi hills for their settlement. Togarapalli, Kappalavadi, Bargur, Kundalakunda have exposure of dolerite in dyke form which facilitated our ancestors from Neolithic period to settle at these sites and more over these dyke formation facilitates spring activity, which could have attracted our ancestors from Neolithic period. These granitoid hills provide ample scope for terrace cultivation. They preferred to settle at the foot or on the terrace of the hills with natural caverns. But that they did not live in the rock shelters or caverns is evident because there is no cultural debris in them. This is evident from the excavations at Paiyampalli. However, one can infer from the evidence of the pottery and some tools collected from caverns that they used them as temporary resorts. Even today terrace cultivation is practiced in this region. On the basis of the extent of the settlement of Neolithic sites i.e., Gollapalli, Togarapalli, Mayladumparai and Mallapadi which are beyond 5 acres in area and probably attained the status of big village settlements during Neolithic period. The remaining Neolithic sites are either small villages or hamlets. During Megalithic period 16 sites extended beyond 8 acres in area and such may be considered as big village settlements. Of these, Togarapalli, Gollapalli and Mayladumparai also figure prominently and the sites are continuously attained importance from Neolithic times onwards and even maintained their status even in Megalithic and Early Historic periods as well. These sites are bestowed with the advantages such as continuous water supply, availability of fertile black cotton soils, easy availability of the raw materials for tool manufacturing, congenial environment to live in and security against being flooded. These advantages were probably allowed continuous habitation by the early farming communities for a longer duration and it is corroborated by the spread and thickness of the habitational mounds at these sites. Probably one or more features mentioned above are not within the reach to the other sites hence they are remained as either villages or hamlets.

Dwellings

The evidence of dwelling from Krishnagiri district has not been found during the present exploration, but, excavation at Paiyampalli (Vellore district, 5 km. from Krishnagiri district) by S.R. Rao have yielded the the evidence of dwelling from this region and could have been in the same way in other Neolithic sites from Krishnagiri District. Excavation at Paiyampalli has brought to light important evidence indicating that the Neolithic people lived in pit-houses. Regarding this evidence Narasimhaiah raised some questions: what circumstances made the people of this region to prefer this type of dwelling, when their other cultural equipment was similar to that of their counterparts in Karnataka, who did not have such dwellings? Or, is this phenomenon confined only to Tamil Nadu? These

questions become more important because Paiyampalli is the only site where pit-houses have been encountered in the Neolithic level in the whole of southern Deccan (Narasimhaiah 1980 : 80-81). But it can be recalled here that the dwelling pits have been noticed in the Neolithic level at Nagarjunakonda (Subramaniyam 1958-59; 1959-60). However, it will not be possible to answer these questions satisfactorily until more sites are excavated in this region (Narasimhaiah 1980:80-81). The dwelling pit observed at Paiyampalli (Rao 1967-68:27) seems to be a granary pit as popularly called Pandakuli in those region. The evidence from Burzohome excavation where the pit-dwellings were identified would have made a greater impact in designating these pits as dwelling pits. However, the close observation made in the sites like Javvadu Ramasamudram, Alasandapuram and Narayanapuram points to existence of granary pits in Neolithic sites. The sub-tropical dry zone also supports this view. It is very difficult to live below the surface in dry hot zones. In cold region like Kashmir pit dwellings may be necessary wherever in Palar river valley it may not require such dwelling pits. Therefore, in all probability, the pits identified in these region could be a granary pits rather than pit dwellings. However, it must be remembered that the above observations hold good only in the case of the neolithic culture represented by the grey ware and a blade industry with a bias to the parallel sided blades and Paiyampalli belongs to this category. No site of the neolithic culture dominated by the red ware has so far been excavated. The limited thickness (10 to 15 cm.) of the occupational deposit at the sites of this culture without any ashy patches, raises doubt about the permanent nature of the settlements (Narasimhaiah 1980:81). The recent excavations carried out at Mayiladumparai to some extent solve this problem. The site Mayiladumparai lies in the same ecological zone of Paiyampalli. It yielded microliths, rock art, neolithic habitation both in rock-shelters and terraces, Iron Age habitation-cum-graves and Early historic deposits with Tamil-Brahmi. The multi-cultural phases of the site suggest that the site was in continuous occupation from Microlithic times to Early Historic period. The Palaeolithic site Kappalavadi also located few kilometers north of this site. The Neolithic habitation yielded handmade red ware rather than burnished grey ware. As pointed out by Narasimhaiah the ceramic assemblage of Neolithic Age of Tamil Nadu predominates with red ware rather than burnished grey ware (Rajan 2004:74-88).

Disposal of the Dead

There is hardly any evidence on the disposal of the dead in Tamil Nadu during from Neolithic period. It is noteworthy state that the two seasons of excavation at Paiyampalli has not yielded any burial of this period. Significantly, neither metal nor painted pottery which would show the influence of the Chalcolithic culture has been encountered in the excavations. Does this indicate that the Neolithic people of this region were not disposing their dead as the others did at Pikkilhal, Tekkalakota, Hallur, Brahmagiri and T.Narsipur? Therefore an in-depth study on the burials would throw on the problem stated above.

3 CONCLUSION

Neolithic phase of Tamil Nadu has the evidence of use of Neolithic Polished axe and has 4 important factory sites namely Bargur, Kapplavadi, Varatanapalli and Kundalakunda

where dolerite stones are exposed in the form of dyke. These were exploited by our ancestors to make Neolithic axe. Apart from axes two varieties of pottery types namely Fabric A and Fabric B type were found. With regards to the settlement pattern of Neolithic people from Tamil Nadu was on the basis of the extent of the settlement of Neolithic sites i.e., Gollapalli, Togarapalli, Mayladumparai and Mallapadi which are beyond 5 acres in area and probably attained the status of big village settlements during Neolithic period. The remaining Neolithic sites are either small villages or hamlets. During Megalithic period 16 sites extended beyond 8 acres in area and such may be considered as big village settlements. Of these, Togarapalli, Gollapalli and Mayladumparai also figure prominently and the sites are continuously attained importance from Neolithic times onwards and even maintained their status even in Megalithic and Early Historic periods as well. These sites are bestowed with the advantages such as continuous water supply, availability of fertile black cotton soils, easy availability of the raw materials for tool manufacturing, congenial environment to live in and security against being flooded. These advantages were probably allowed continuous habitation by the early farming communities for a longer duration and it is corroborated by the spread and thickness of the habitation mounds at these sites. Probably one or more features mentioned above are not within the reach to the other sites hence they are remained as either villages or hamlets.

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